**Methanol from natural gas (Level 1) examiners tips: Read these please!**

**• step 1: reforming:** natural gas (methane) is converted into gases (CO2, CO and H2)

conditions required are steam at a high temperature, high pressure and a catalyst (nickel)

word equation: methane + water 🡪 carbon dioxide + carbon monoxide + hydrogen

balanced symbol equation: 2CH4 + 3H2O 🡪 CO2 + CO + 7H2

**• step 2: synthesis:** the gases, also known as syngas (CO2, CO and H2) produce methanol

conditions are a temperature of about 250**°**C and a catalyst (copper-zinc)

word equation: carbon dioxide + carbon monoxide + hydrogen 🡪 methanol + water + hydrogen

balanced symbol equation: CO2 + CO + H2 🡪 2CH3OH + H2O + 2H2

**Also…”don’t be daft”**

RTQ2 – read the question twice!

write the word equation first

double check your balanced symbol equation…

1st the chemical formula of each substance

2nd the number of moles of reactants and products

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